

REMARKS

In response to the Office Action mailed December 23, 2004, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicants submit the following remarks and have added new claims. Applicant requests that, after consideration of these remarks, a favorable decision will be provided regarding the claims. The claims as now presented are believed to be in allowable condition.

Claims 1-9, 12-20, 22-27, 30-34 are pending in this application. Claims 1, 20, 24, and 30 are independent claims and the remaining claims are dependent claims. Claims 31-34 have been added by this amendment.

Claim Rejections

Claims 1-7, 12-20, and 22-27 were rejected under 35 U.S.C. §102(b) as being anticipated by Brant et al., U.S. Patent No. 5,805,787 (hereinafter Brant). Claims 8-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Brant in view of Eckard et al., U.S. Patent No. 6,078,498 (hereinafter Eckard).

Preliminary Matters

The Office Action states that amendments filed 29 October 2004, 26 November 2004, and 2 December 2004 have been entered upon filing an RCE. The Office Action further states that claims 1-9, 12-20, and 22-27 are pending.

In the amendment filed 2 December 2004 with the RCE, the amendment included a new claim 30, not discussed in the present Office Action. The Applicants have paid the fee for the examination of claim 30 and the claim must be entered as part of the amendment as a matter of right. Because no rejection has been provided in the Office Action, the Applicants assume claim 30 has been allowed.

In the Office Action Summary, under the "Application Papers" section, the Examiner has checked Box 10 that recites "The drawing(s) filed on 23 October 2001 is/are:". The remainder of Box 10 has not been completed. The Applicants respectfully request clarification as to whether the drawings are accepted or objected to by the Examiner.

Information Disclosure Statement

The Applicants wish to point out that the Applicants submitted an IDS on July 27, 2004. The Office Action asserts that the “IDS submitted 27 July 2004 … was not accompanied by a fee and a statement under 37 CFR 1.97(e)” and that “the IDS has not been considered.” The Applicants respectfully disagree with the assertions made in the Office Action.

Applicants’ respectfully disagree with this assertion. The submission required either a specific statement *or* the fee. In particular, MPEP 609 expressly states the following:

37 CFR 1.97 Filing of information disclosure statement.

- (a) In order for an applicant for a patent or for a reissue of a patent to have an information disclosure statement in compliance with § 1.98 considered by the Office during the pendency of the application, the information disclosure statement must satisfy one of paragraphs (b), (c), or (d) of this section.
 - (b) An information disclosure statement shall be considered by the Office if filed by the applicant within any one of the following time periods:
 - (1) Within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d);
 - (2) Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;
 - (3) Before the mailing of a first Office action on the merits; or
 - (4) Before the mailing of a first Office action after the filing of a request for continued examination under § 1.114.
 - (c) An information disclosure statement shall be considered by the Office if filed after the period specified in paragraph (b) of this section, provided that the information disclosure statement is filed before the mailing date of any of a final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application, and *it is accompanied by one of*:
 - (1) The statement specified in paragraph (e) of this section; or
 - (2) The fee set forth in § 1.17(p). (*Emphasis added*).

Applicants information disclosure statement was submitted in full compliance with MPEP 609 and 37 CFR 1.97(c). In particular, Applicants’ information disclosure statement was submitted on July 27, 2004 which was after the mailing of a first Office action and before the mailing date of a final action. Furthermore, Applicants’ information disclosure statement was submitted with the fee set forth in § 1.17(p).

A copy of Applicants' information disclosure statement and the PTO-1449 form is enclosed with this Amendment. The portion of the information disclosure statement showing payment of the fee set forth in § 1.17(p) is highlighted. In particular, 37 CFR 1.25 provides for payment of fees using a deposit account “[f]or the convenience of attorneys, and the general public in paying any fees due....”

In view of the above, the Patent Office must properly process the information disclosure statement by considering the references and returning a completed PTO-1449 showing that the disclosed references are now of record in the Application. Without properly processing the information disclosure statement as described above, Applicants' would not be able to respond to the correspondences from the Patent Office in a reliable manner. Accordingly, Applicants again respectfully request that the Patent Office consider the disclosed references and return a completed PTO-1449 form with the next Patent Office correspondence.

Rejections under §102(b)

Independent claims 1, 20, and 24 were rejected under 35 U.S.C. §102(b) as being anticipated by Brant.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."¹ "The identical invention must be shown in as complete detail as is contained in the ... claim."²

The Office Action has not established that Brant anticipates independent claims 1, 20, and 24 of the present Application because Brant does not teach or suggest every element of the Applicant's claims. The Applicants respectfully traverse each of these rejections and request reconsideration. The claims are in allowable condition.

The Applicants' claim 1 relates to a data storage device and claim 21 relates to a data storage system having a data storage device. Each of claims 1 and 21 recite a controller configured to implement a RAID scheme wherein "the RAID scheme is independent of a hierarchically higher RAID controller that sends the data storage device RAID data". The Applicants' claim 24 relates to method of servicing input/output (I/O) data access requests at a

¹ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

data storage device. The Applicants' claim 24 recites "receiving I/O requests at a device interface of the data storage device, wherein receiving an I/O request comprises **receiving an I/O request from a hierarchically higher RAID controller**" and "accessing the more than two disks in accordance with a RAID scheme".

Brant describes a storage hierarchy associated with various contemporary storage configurations.³ Brant provides the hierarchy as a list of storage configurations in order of highest cost but fastest performance first and lowest cost but slowest performance last.⁴ Brant indicates that a "storage subsystem that has the MB cost of disk coupled with the performance of many disks operated in parallel can fill several intermediate slots in this hierarchy".⁵ For example Brant recites that "[f]urther down the hierarchy, inexpensive controllers coupled to an array in RAID1 configurations can yield high I/O rates" and "[s]till further down the hierarchy, RAID5 configurations reduce the cost of protected storage with small redundancy groups and higher capacity disk (more data under each disk head)."⁶

Brant does not anticipate the Applicants' independent claims 1 and 21 because Brant does not disclose or suggest a controller configured to implement a RAID scheme wherein "the RAID scheme is independent of a hierarchically higher RAID controller that **sends the data storage device RAID data**" as claimed by the Applicants. While Brant lists a storage hierarchy, the list merely ranks various storage configurations based upon performance and cost. The list is unrelated to **hierarchical operation** of multiple RAID schemes, such as claimed by the Applicants. Brant does not teach or suggest interaction (e.g., transmission or sending of RAID data) among RAID configurations that "can fill several intermediate slots in this hierarchy". Therefore, Brant does not teach or suggest a hierarchically higher RAID controller that sends RAID data to a controller where the controller independently implements a RAID scheme (e.g., a RAID within RAID scheme), as claimed by the Applicants.

Brant also does not anticipate the Applicants' independent claim 24 because Brant does not disclose or suggest "receiving I/O requests at a device interface of the data storage device,

² *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

³ Brant, col. 5, l. 12-13.

⁴ Brant, col. 5, l. 13-15.

⁵ Brant, col. 5, l. 29-31.

⁶ Brant, col. 5, l. 33-39.

wherein receiving an I/O request comprises **receiving an I/O request from a hierarchically higher RAID controller**” and “accessing the more than two disks in accordance with a RAID scheme”, as claimed by the Applicants. Again, while Brant lists a storage hierarchy, the list merely ranks various storage configurations based upon performance and cost. Brant neither teaches or suggests interaction among the elements in the list nor teaches or suggests interaction (e.g., sending of RAID data) among RAID configurations that “can fill several intermediate slots in this hierarchy”. Therefore, Brant does not teach or suggest “receiving I/O requests at a device interface of the data storage device, wherein receiving an I/O request comprises **receiving an I/O request from a hierarchically higher RAID controller**” and “accessing the more than two disks in accordance with a RAID scheme”, as claimed by the Applicants.

With respect to independent claims 1, 20, and 24, the Office Action asserts that “[b]y stating that the system of Brant et al., which includes RAID . . . that the storage subsystem can fill several intermediate slots in the hierarchy, . . . Brant et al. anticipates hierarchically higher RAID controllers”. The Applicants respectfully disagree with this assertion. Brant merely lists, as part of the hierarchy, various storage configurations presented in an order with the highest cost but fastest performance first and lowest cost but slowest performance last. The list is unrelated to the relative **hierarchical operation** of multiple RAID schemes, such as claimed by the Applicants. To maintain the rejection, the Applicants respectfully request that the Examiner point out with particularity where “Brant et al. anticipates hierarchically higher RAID controllers” relating to the relative **hierarchical operation** of multiple RAID schemes, such as claimed by the Applicants.

Because Brant does not teach or suggest every element of the Applicants’ independent claims 1, 20, and 24, Brant does not anticipate claims 21 and 29. Claims 1, 20, and 24, therefore, are patentable over Brant and should be allowed to issue. Accordingly, the rejection of these claims should be withdrawn. Claims 2-9 and 12-19, which depend on claim 1, claims 22-23, which depend on claim 20, and claims 25-27, which depend upon claim 24, should also be allowed to issue as depending upon an allowable independent claims (i.e., for at least the reasons presented). Reconsideration of the rejection is respectfully requested.

Rejections under §103

Dependent claims 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Brant in view of Eckard.

In order to establish a *prima facie* case of obviousness, the Office Action must meet three criteria.

“First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.”⁷

Claims 8 and 9 depend from independent claim 1. Claim 8 relates to the data storage device, recited in the Applicants’ claim 1, comprising a housing. Claim 9 relates to the housing of claim 8 having one of a standard, half-height, and low-profile form factor.

The Office Action has not established a *prima facie* case of obviousness with respect to claims 8 and 9 because neither Brant nor Eckard, alone or in combination, teach or suggest all of the claim limitations in claims 8 and 9.

Brant describes a storage hierarchy associated with various contemporary storage configurations.⁸ Brant provides the hierarchy as a list of storage configurations in order of highest cost but fastest performance first and lowest cost but slowest performance last.⁹ Eckerd discloses a disc drive 100 having a top cover and a base deck 102.¹⁰ Eckerd then mentions a variety of form factor details.¹¹

As indicated above, Brant does not teach or suggest every element of the Applicants’ independent claim 1. Eckerd also does or teach or suggest a data storage device as claimed by the Applicant in claim 1. Neither Brant nor Eckerd, alone or in combination, teaches or suggests all of the elements of the Applicants’ dependent claims 8 and 9. Accordingly, the rejection of these claims should be withdrawn.

⁷ *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

⁸ Brant, col. 5, l. 12-13.

⁹ Brant, col. 5, l. 13-15.

¹⁰ Eckerd, col. 3, l. 17-25, Fig. 1.

¹¹ Eckerd, col. 5, l. 16-30.

Newly Added Claims

Claims 31-34 have been added and are believed to be in allowable condition. Claim 31 depends from claim 30, claims 32-33 depend from claim 1, and claim 34 depends from claim 20. Support for claim 31 is provided within the Specification, for example, on page 11, line 10 through page 12, line 10 as well as Fig. 10. Support for claim 32 and 34 is provided within the Specification, for example, on page 10, line 15 through page 11, line 9. Support for claim 33 is provided within the Specification, for example, on page 8, line 20 through page 9, line 17. No new matter has been added.

Conclusion

In view of the foregoing remarks, this Application should be in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after this Response, that the Application is not in condition for allowance, the Examiner is respectfully requested to call the Applicants' Representative at the number below.

Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,



Jeffrey J. Duquette, Esq.
Attorney for Applicants
Registration No.: 45,487
CHAPIN & HUANG, L.L.C.
Westborough Office Park
1700 West Park Drive
Westborough, Massachusetts 01581
Telephone: (508) 366-9600
Facsimile: (508) 616-9805

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